Accident Data Analysis: Safety in the Numbers

Goals and Objectives

- Identify and locate principal sources of accidents and potential accidents
- Determine nature of accident problem by department or job
- Disclose inefficiencies in operating processes or procedures
- Uncover unsafe practices
- Make safety efforts more effective

How will loss analysis help me and my agency?

- Why examine your agency's loss data?
  - Work-related loss events (injuries, illnesses, property damage, liability claims, etc.) negatively affect:
    - Person(s) directly involved
    - Co-workers and supervisors
    - Clients
    - Family
    - Organizational goals and objectives
  - Work-related loss events represent a significant drain on already limited economic and human resources.

When and how often should I analyze our loss data?

- Up to you!
  - At least once each year
  - Quarterly
  - As needed

Sources of Information

- Agency-specific accident report
- OSHA 300 and 200 logs
- G2 WebLink loss data
- Internal accident data base
- Near-miss incident reports

Sources of Information

- G2 WebLink Loss Data
  - EO 52 (99) Master
  - Industrial Claims Report

Sources of Information

- G2 WebLink Loss Data
  - Top Five Job Classifications Report
  - Policy Cost Summary

Now What ?


Unsafe Condition
Source
Cost
Target
Action
Lost Time
Unsafe Act
Result
Location

Where do I begin?

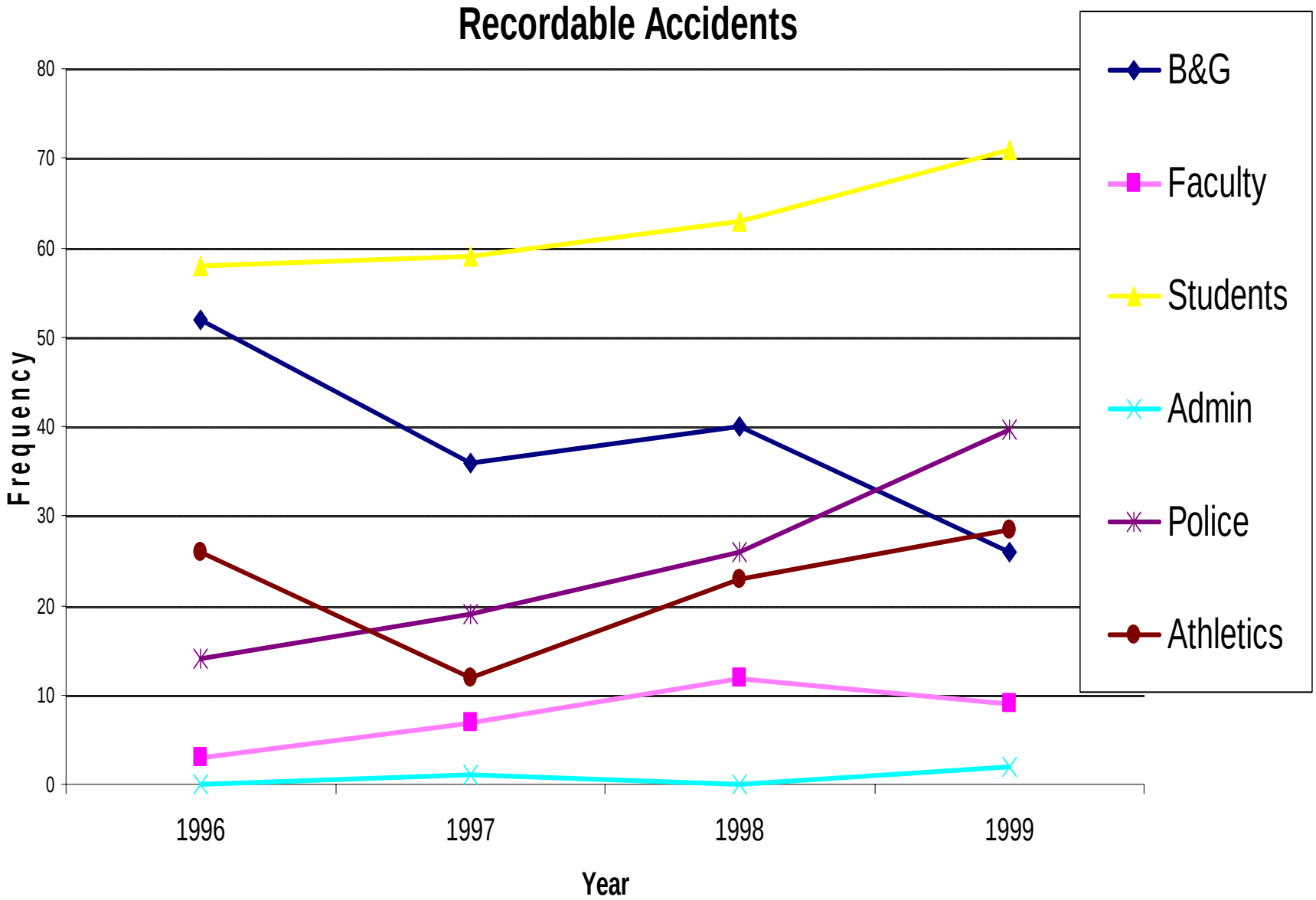
- Take a realistic look at your situation
  - If you were to examine your loss experience for each of the past three years, what would you see?
    - 1) relatively low levels of loss
    - 2) moderate levels of loss
    - 3) relatively high levels of loss

Where do I begin?

- If your answer was either 2) or 3), you would then probably observe:
  - Same categories of loss repeating each year
  - Same accident types
  - Same injuries
  - Same loss causes

Where do I begin?

- Are your loss levels going up, down, or remaining the same?
  - Recommend you maintain a log book or spreadsheet of yearly loss statistics
    - Frequency of losses
    - » 1) by type and level of severity
    - » 2) by organizational unit
    - » 3) by major job classification
    - » 4) number of employee hours worked
  - Recommend you plot these data on trend line


Recordable Accidents
80
70
60
50
40
30
20
10
0
Frequency
1996
1997
1998
1999
Year
B&G
Faculty
Students
Admin
Police
Athletics

Make a realistic appraisal

- The patterns of loss in your facility or institution will not change unless “changes” are made in the context and conditions that produce and sustain them.
- This will require:
  - Management commitment
  - An understanding of the multiple causes that create and sustain your accident/loss problems
  - Targeted interventions that will alter and shape your organization’s safety culture
  - Motivation, enforcement, and reinforcement

What is Multiple Causation?

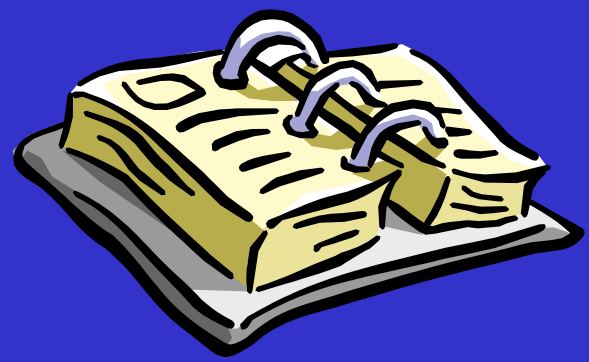
- Losses don't just happen, they are caused
  - People (workers, co-workers, supervisors, patients, inmates, clients) contribute to causation
  - Tools, machinery, equipment contribute to causation
  - Conditions in and around the immediate work environment contribute to causation
  - Organizational Culture (not your formal policy, but the informal way *"things are really done around here"*) contributes to causation
  - Management (policies & procedures, training, supervision, communications, etc.) contribute to causation.
- So, look for and expect "multiple causes"

General principles of loss data analysis

- **Increase the power of your loss-reduction efforts**
  - Dig deeper and develop a “multiple cause” understanding of your repeating yearly patterns of loss
  - Build and package your loss-reduction (or cost containment) efforts so they target the identified multiple causes;
    - people
    - materials, equipment
    - work or job environment
    - management (supervisory policies, training, communications, discipline, procedures, etc.)
  - Invest sufficient management commitment (time, resources, and follow-through) so that your loss-reduction efforts reach critical mass (i.e., they have the power and potential to produce real change)

Organizing the Data

- Weekly
- Monthly
- Quarterly
- Semi-annually
- Annually
- Calendar year
- Fiscal year



Step 1: Break it Down!

Do not collapse or summarize your data too soon! Break it down! Keep it specific!

(Rule: *specific* to *general*)

- Log/tally your loss events so they may be sorted and evaluated using the following ***key attributes*:**
  - **Job Classification (Occupation)**
  - **Organizational Unit**
  - **Actual *Physical Location* (use a spot map to see if/where losses cluster)**
  - **Facility/Institution**
  - **Other:**
- You can always add your key attribute reports together to create a summary, but it's impossible to use a summary sheet to isolate key attribute specific data.

Breakdown Information

- Analyze information
  - Frequency
  - Severity
  - Near misses
  - Categories

Important Information

- Description of accidents
- Total number of injuries
- Total number of lost work days
- Total dollars incurred

Step 2: Prioritize your loss events

Rank your loss events by *key attribute* (i.e., org. unit, job classification, etc.)

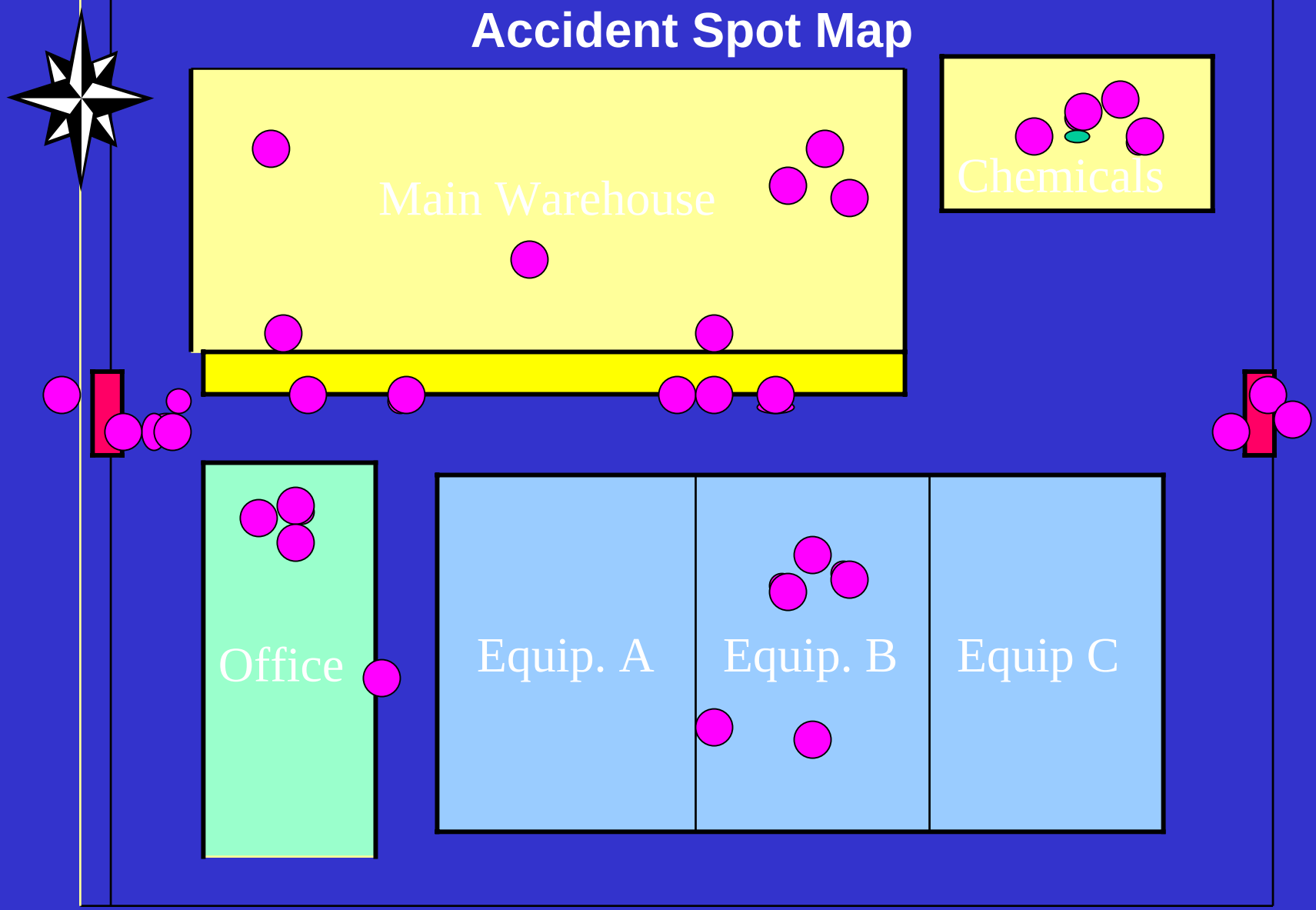
- A variety of rankings are possible to evaluate each *key attribute* grouping:
  - Frequency (use raw numbers to rank)
    - number of incidents
    - number of lost workdays
    - number of restricted workdays
  - Exposure (use rates to control for differences in numbers of workers exposed; see Appendix A for a helpful handout on calculating various types of rates)
    - accident/injury incident rate (per 100 FTE workers)
  - Severity (use $, number of lost work days, etc. to rank)
    - Total Medical + Total Indemnity
    - Lost Workday Case Rate (per 100 FTE workers)
    - Lost Workday Rate (per 100 FTE workers)

Step 3: Examine the patterns

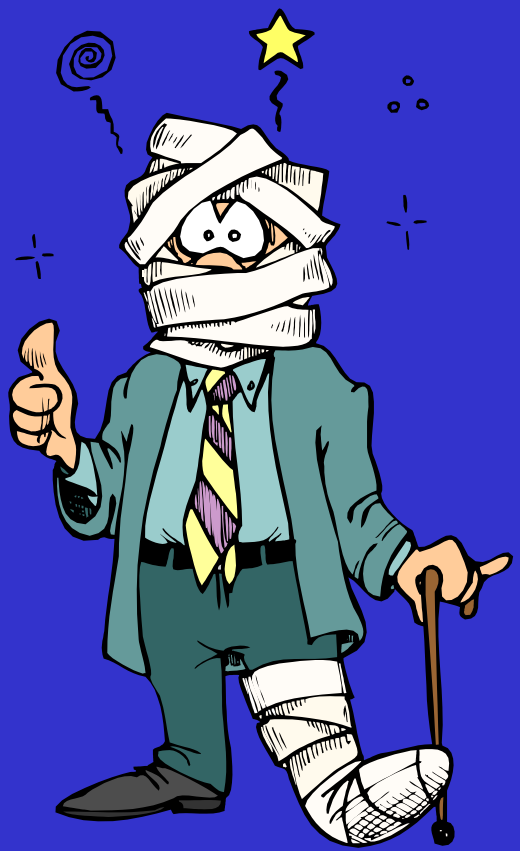
Focus in on the patterns of loss that appear most meaningful and accessible to control.

- Examine your ranked listing(s) of losses grouped by the *key attribute(s)* that make the most sense to you;
  - Job Classification (Occupation)
  - Organizational Unit
  - Actual *physical location* (use spot map to see if/where losses are clustering)
- For each job classification (or organizational unit -- or high accident location) prepare the following:
  - a ranked listing by ***accident type***
  - a ranked listing by ***loss cause***
  - a ranked listing by ***injury***
  - a ranked listing by ***body part***

Central Agency Operations Center
Accident Spot Map



Remember



- Look at the big picture
- Rank losses

Step 4: Ask Important Questions

Q1: Where are our accidents/losses occurring? What organizational units, employee classifications, and/or physical locations are at greatest risk?

- analyze by organizational unit
- analyze by job classification
- analyze by physical location
- other

Q2: What are the most frequent types of accidents/losses associated with each unit, job, or location? What are the financial (and other) costs?

Q3: Are these losses growing, declining, or remaining about the same over time?

Step 4: Ask Important Questions

Q4: What are the causes and outcomes of our most serious loss patterns? ***(For your top ranked organizational units, job classifications, and/or physical locations, dig deeper to discern underlying patterns of:)***

- accident type
- loss cause
- injury
- body part
- others (e.g.,time of incident, sex, age, etc., if relevant)

Q5: Clarify and list the factors and conditions that create and sustain these loss patterns. Look for problems with:

- individual and group behaviors
- materials and equipment
- facilities design/maintenance
- management oversight and supervision
- training/development
- other:

Determining Importance

Knowing 40% of on the job accidents involve ladders

VS.

Knowing that 80% of the ladder accidents involve broken rungs

Step 4: Ask Important Questions

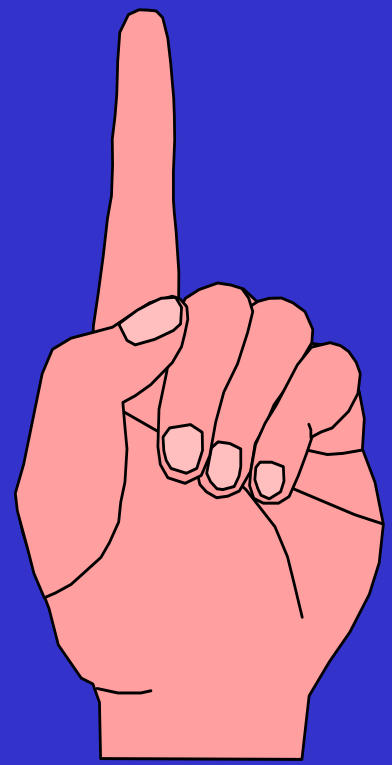
Q6: Examine how your organization's "culture" supports and maintains observed patterns of loss.

Q7: Develop cost-containment and loss-reduction program strategies targeting identified loss patterns.

- fix obvious and immediate short-term problems
- develop strategies and internal agency commitment to resolve larger "culture" issues

!!Caution!!

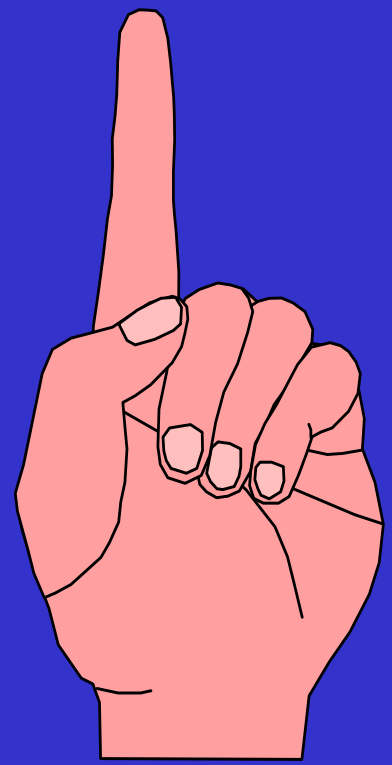
- The category with the largest number of injuries is not always your greatest area of concern.



Example:

1000 paper cuts
Cost - $300.00
Lost Time - 0 days

4 Back injuries
Cost - $500,000
Lost Time - 595 days



*Remember, look at the big picture to determine the greatest risk.

Summary

1) Analyze the loss patterns occurring within your agency, institution, or facility -- at least once annually; quarterly if possible

2) Make sure the data you collect are accurate (i.e., first report of accident, etc.)

Rule: GIGO (Garbage In-Garbage Out)

3) Keep Data Specific (to organization units, job classifications, physical locations)

Rule: Specific to General

4) Focus on Multiple Causes

5) Ask Important Questions

6) Target Your Loss Reduction Efforts:
   - Short-Term Fixes to Fix Immediate Problems
   - Long-Term Strategies to Create a Safe Work Culture

Questions????